

REMARKS/ARGUMENTS

Status of the Claims

Prior to making this amendment, claims 1, 5-21, 24-28, and 34-43 were pending in this application. All of these claims were rejected under 35 USC 102 or 35 USC 103. Claim 43 was objected to and has now been amended. Claims 1, 5-21, 24-28, and 34-43 are now presented for further examination.

No new matter is added by the amendments.

Objection to claim 43

The Examiner correctly noted that the words “acoustic channel” were repeated in claim 43. This inadvertent error is now being corrected. A redundant “for” is also being deleted from line 13 of this claim.

Previous arguments and rejections under 35 USC 102(e)

Applicants note, with appreciation that the Examiner recites applicants’ position and then lays out his response in paragraph 3 of the Office Action. However, applicants continue to believe that the invention is distinct from Dubinsky. A significant distinction concerns the detection of information in the return signal, a feature which does not appear to have been fully dealt with in the Examiner’s response to previous argument.

Dubinsky does not rely on phase shift to encode information on the return signal, and does not disclose the final feature of claims 1, 21, 28 and 43. In claim 21 this is the feature of detecting phase-related information. In claims 1, 28 and 43 it is the feature of sensors which do this. Dubinsky relies on amplitude modulation and his receiver 214 at the surface detects such amplitude modulation. There is no suggestion that it detects or decodes phase change. It is

applicants' position that Dubinsky merely notes in passing that some phase change will occur. Phase change is not used to carry information and is not detected.

In more detail: Figures 1 to 3 of Dubinsky US 6757218 disclose an arrangement in which signaling is plainly stated to be carried out by amplitude modulation. The top part of Dubinsky Figure 2 shows a source signal which is a succession of pulses and a received echo signal in which four pulses of full size alternate with four pulses of reduced size. This amplitude-modulated signal encodes binary 1 0 1 0 . Figures 3A to 3C are described at Dubinsky column 3 line 35 as "plots showing characteristics of various reflection signals". The vertical axis in these plots is labeled "amplitude". Here Figure 3B appears the most relevant. Dubinsky column 4 line 60 says that it shows bi-level signal transmission. Figure 3B plainly shows pulses with amplitude alternating with gaps without amplitude

The reflection of pulses with the changes in their amplitude is brought about by the reflector device 134 described at Dubinsky column 4 lines 5-10. Figure 2 is stated at column 4 line 37 to be a schematic representation of Figure 1. In it the reflector 208 operates to create the binary coded, amplitude-modulated message shown at the top of the figure.

The feature of an amplitude modulation of the signal is repeated very clearly at the top of Dubinsky column 5, where lines 1 to 4 continue the description of Figure 3B and refer to "large" and "little" reflection. The next paragraph continues the discussion and at column 5 lines 11 and 12 it is acknowledged that "The reflected signal, however, might be phase shifted". That is a very non-committal sentence.

Thus Applicants believe that, at this point, Dubinsky is still teaching reliance on amplitude modulation as the signaling technique and merely notes in passing that the amplitude-modulated reflected signals will contain some phase shifting. Nowhere does Dubinsky propose to make use of phase change as the way to encode a message onto the reflected signal.

The Examiner's response to previous argument then goes on to consideration of Figure 4B of Dubinsky. The Examiner identifies the slanted position of the flapper with a first

state in which there is reflection of the signal and identifies the vertical position of the flapper with a second state in which the signal will go straight through and reflect off the bottom with a phase shift.

Reflection in the slanted position of the flapper is not an issue: Dubinsky teaches that. However, Dubinsky does not teach reflection when the flapper is in the vertical position. Dubinsky does not say where the signal goes after it goes straight through, passing the vertical flapper. Dubinsky does not refer to a “bottom” for the signal to reach. Dubinsky’s Figure 4B has break-lines at top and bottom and so the drawing does not show what happens. However, the text of Dubinsky column 6 line 4 clearly states that

“One position 426a of the flap 426 results in little or no reflection of a source signal”.

426a denotes the vertical position and thus it is taught by Dubinsky that when the flap is vertical and the signal goes straight through, there is little or no reflection. Of course, this is what Dubinsky wants, because he is using difference in amplitude of the reflection to create amplitude-modulation of the return signal.

By way of summary, using the words of the previous response quoted in the Official Action, Applicants say that claims 1, 21, 28 and 43 require

- 1) there is reflection in a first state of the apparatus — Dubinsky has this.
- 2) there is also reflection in a second state
 - Figure 4B of Dubinsky shows a second state but there is “little or no” reflection according to Dubinsky
- 3) reflection in the second state differs in phase from reflection in the first state
 - reflection (if any) may differ in phase, but since there is “little or no” reflection, any phase shift is immaterial
- 4) This difference in phase is detected at the surface.
 - neither disclosed nor suggested by Dubinsky.

In Dubinsky, any phase change is purely incidental. Since Dubinsky does not disclose or suggest detection of phase change at the surface, it is respectfully submitted that Dubinsky does not take away novelty and it is respectfully requested that the rejections of claims 1. 5-8. 10, 11, 12, 14, 15, 17,20,21,24,25,28,38,40 and 42 under 35 USC 102(e) are withdrawn.

Rejections under 35 USC 103

Since the starting point for the rejections under 35 USC 103 is the rejection of the independent claims under 35 USC 102, it is requested that the rejections under 35 USC 103 should also be withdrawn.

Regarding the rejections of claims 18, 19, 34 and also 43 over a combination of Dubinsky and Karl, neither Dubinsky nor Karl teaches that an acoustic source at the surface can provide both a power source and a signaling system.

Conclusion

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Because this response is being made after final, the argument has been largely confined to the independent claims and no amendment has been made except in response to the objection to claim 43. No admission is made concerning any points not explicitly discussed herein.

In the event that a fee or refund is due in connection with this Amendment, the Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No 19-0615. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned.

Respectfully submitted,

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